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| 10/048,054      | 01/25/2002  | Masashi Otsuki       | 111788              | 8751             |

7590 01/05/2005  
Oliff & Berridge  
P O Box 19928  
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EXAMINER

LE, HOA VAN

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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1752

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/048,054

Applicant(s)

OTSUKI ET AL.

Examiner

Hoa V. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 with respect to the elected and applied species is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

This is in response to Papers filed on 15 November 2004.

I. A new applied reference or new type of rejection would not properly make the Office action to be final. The prosecution history and its contents have been carefully reviewed. The applied references on the record are found to be sufficiently applied against the claims.

Therefore, no new reference or new type of rejection is added in this Office action.

II. The record shows that applicants elect (1)  $\text{LiBF}_4$  electrolyte, (2) EO-type containing phosphazene additive and (3) gamma butyrolactone solvent species. The elected species on the record have been considered and searched. The consideration and search are extended to the applied species. Others have not been considered, searched or examined until all of the elected and applied species are overcome.

III. Claims 1-3 and 8-20 with respect to the elected and applied species are rejected under 35 U.S.C. 103(a) as being unpatentable Naruyuki et al (JP 11-144757 with machine English language translation as newly submitted).

Naruyuki et al disclose, teach and suggest a non-aqueous secondary (rechargeable) cell (battery) (paragraph 0010) comprising positive electrode, negative electrode, lithium electrolyte salt and phosphazene additive (paragraph 0011). The elected  $\text{LiBF}_4$  electrolyte species other applied electrolyte species are in paragraph 0025.

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Naruyuki et al do not cite the elected gamma butyrolactone solvent. However, other known solvents are applied in paragraph 0022. "propylene carbonate" is an adjacent homologue to "ethylene carbonate" in the instant claim 4-6. However, Naruyuki et al fail to specify an "cyclic ester" type. Accordingly, claims 4 and 6 are properly withdrawn Naruyuki et al. They will be considered when all of the applied solvents are overcome.

The instant claims use some less than 2.5 and some more than 2.5 % vol. of phosphazene additive. It has and is given no patentable value since it has no criticality for a patentability of a selection at 2.5 % vol. and each of its both ends on and for the record in the instant application.

Naruyuki et al disclose, teach and suggest the use from 50 to 90% a phosphazene in a mixture of solvent and phosphazene in paragraph 0023.

Naruyuki et al disclose, teach and suggest elected EO type containing phosphazene additive in the general formula (1) with "m" being "0" (zero) and "R" being "ethoxy radical" (paragraph 0018 and 0019) that is read within the general formula (1) of the instant claims. Please especially see the instant claim 1. Accordingly, it is reasonable that the same (the elected EO type containing phosphazene additive) of substantially the same compounds in Naruyuki et al general formula (1) would provide the same property of "phosphazene derivative is a liquid at room temperature" as newly added embodiment. For the same reasons, the property in claims (1 with "flashing point", 2 with "viscosity", 8 and 9 and 10 and 12 and 15 and 16 and 19 and 20 including "potential window" or ---electrodeconductivity--- (please correct "electoconductivity" in claim 15) or "dielectric constant" would have the same or substantially the same property.

The species in claim 7 is not elected or applied from Naruyuki et al it is properly with drawn from Naruyuki et al. It will be considered when all of the applied solvents are overcome.

Since Naruyuki et al reasonably teach and suggest the claimed requisite chemical ingredients as clearly shown and pointed out above, the property as claimed is reasonable had the same or about the same property as that in Naruyuki et al especially with the use of the phosphazene additive for the desired advantage of obtaining (1) a suppression of an "evaporation" and "decomposition" of an electrolyte and (2) a reduction of "danger", "firing" and "ignition" and (3) super battery performance in the "Abstract".

Applicant's arguments filed 15 November 2004 have been fully considered but they are not persuasive.

Applicants urge that Naruyuki et al cell does not contain the elected EO type containing phosphazene. For these issues, teachings and suggestions, please paragraphs 0018 and 0019 as clearly pointed out in the above rejection on the record.

Applicants urge that there is no property of low viscosity or safety in Naruyuki et al cell. It is reasonable that the use of the same EO type containing phosphazene or its derivative in a cell would obtain the same or substantially the same property. However, for safety issue, teachings and suggestion please see "Abstract" as clearly pointed out in the above rejection on the record.

IV. Claims 1-3 and 7-20 with respect to the elected and applied species are rejected under 35 U.S.C. 103(a) as being unpatentable Naruyuki et al (JP 06-013108 with machine English language translation as newly submitted).

Naruyuki et al disclose, teach and suggest a non-aqueous secondary (rechargeable) cell (battery) comprising positive electrode, negative electrode, lithium electrolyte salt and

phosphazene additive (paragraph 0011). The elected  $\text{LiBF}_4$  electrolyte and other applied electrolyte species are in paragraph 0024.

Naruyuki et al do not cite the elected gamma butyrolactone solvent. However, other known solvents are applied in paragraph 0021. "propylene carbonate" is an adjacent homologue to "ethylene carbonate" in the instant claim 4-6. However, Naruyuki et al fail to specify an "cyclic ester" type. Accordingly, claims 4 and 6 are properly withdrawn from Naruyuki et al. They will be considered when all of the applied solvents are overcome.

The instant claims use some less than 2.5 and some more than 2.5 % vol. of phosphazene additive. It has and is given no patentable value since it has no criticality for a patentability of a selection at 2.5 % vol. and each of its both ends on and for the record in the instant application.

Naruyuki et al disclose, teach and suggest the use from 50 to 90% a phosphazene in a mixture of solvent and phosphazene in paragraph 0024.

Naruyuki et al disclose, teach and suggest the elected EO type containing phosphazene with (A) "n" being "3" (paragraph 0016 and 0018) and "R" being "ethoxy" (paragraph 0017) and their derivatives. They are read within the general formula (2) of the instant claims or (B) "m" being "1" (paragraphs 0016) and "R" being "ethoxy" (paragraph 0017) and their derivatives. They are read on the general formula (1) of the instant claims. Please especially see the instant claims 1 and 7. Accordingly, it is reasonable that the same (the elected EO type containing phosphazene additive) of substantially the same compounds in Naruyuki et al general formula (1) would provide the same property of "phosphazene derivative is a liquid at room temperature" as newly added embodiment. For the same reasons, the property in claims (1 with "flashing point", 2 with "viscosity", 8 and 9 and 10 and 12 and 15 and 16 and 19 and 20 including

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“potential window” or ---electrodeconductivity--- (please correct “electoconductivity” in claim 15) or “dielectric constant” would have the same or substantially the same property.

Since Naruyuki et al reasonably teach and suggest the claimed requisite chemical ingredients as clearly shown and pointed out above, the property as claimed is reasonable had the same or about the same property as that in Naruyuki et al especially with the use of the phosphazene additive for the desired advantage of obtaining (1) a controllable “evaporation” and “decomposition” (2) an electrolyte in low temperature, (3) reduction of “danger” of “ignition” and (4) outstanding battery performance in paragraph 0010.

Applicant's arguments filed 15 November 2004 have been fully considered but they are not persuasive.

Applicants urge that Naruyuki et al cell does not contain the elected EO type containing phosphazene. For these issues, teachings and suggestions, please paragraphs 0016-0018 as clearly pointed out in the above rejection on the record.

Applicants urge that there is no property of low viscosity or safety in Naruyuki et al cell. It is reasonable that the use of the same EO type containing phosphazene or its derivative in a cell would obtain the same or substantially the same property. However, for safety issue, teachings and suggestion please see paragraph 0010 as clearly pointed out in the above rejection on the record.

V. Claims 1-20 with respect to the elected and applied species are rejected under 35 U.S.C. 103(a) as being unpatentable over Fui et al (JP 11-191431 with machine English language translation as newly submitted).

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Fui et al disclose, teach and suggest a non-aqueous secondary (rechargeable) cell (battery) comprising positive electrode, negative electrode (paragraphs 00070, the elected  $\text{LiBF}_4$  electrolyte species and other applied electrolyte species are in paragraph 0023, gamma butyl lactone (butyrolactone) solvent and other applied solvent are in paragraph 0025. They are properly applied to claims 3-6.

The instant claims use some less than 2.5 and some more than 2.5 % vol. of phosphazene additive. It has and is given no patentable value since it has no criticality for a patentability of a selection at 2.5 % vol. and each of its both ends on and for the record in the instant application.

Fui et al disclose, teach and suggest the use from 0.5 to 20 % wt. of a phosphazene in a mixture of solvent and phosphazene in paragraph 0031.

Fui et al disclose, teach and suggest the elected EO type containing phosphazene of the general formula (2) with "n" being from "1" (paragraphs 0033 and 0034) and "R" being "-CH<sub>2</sub>-CH<sub>3</sub>" (paragraph 0035) and their derivatives. They are read within the general formula (2) of the instant claims or (B) "m" being "1" (paragraphs 0016) and "R" being "ethoxy" (paragraph 0017) and their derivatives. They are read on the general formula (1) of the instant claims. Please especially see the instant claim 1. Accordingly, it is reasonable that the same (the elected EO type containing phosphazene additive) of substantially the same compounds in Naruyuki et al general formula (1) would provide the same property of "phosphazene derivative is a liquid at room temperature" as newly added embodiment. For the same reasons, the property in claims (1 with "flashing point", 2 with "viscosity", 8 and 9 and 10 and 12 and 15 and 16 and 19 and 20 including "potential window" or ---electrodeconductivity--- (please correct "electoconductivity" in claim 15) or "dielectric constant" would have the same or substantially the same property.

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The species in claim 7 is not elected or applied from Fui et al it is properly withdrawn from Fui et al. It will be considered when all of the applied solvents are overcome.

Since Fui et al reasonably teach and suggest the claimed requisite chemical ingredients as clearly shown and pointed out above, the property as claimed is reasonable had the same or about the same property as that in Naruyuki et al especially with the use of the phosphazene additive for the desired advantage of obtaining (1) a recharged "cycle" being increased, (2) "flameproofing" (paragraph 0006) and (2) "stable coat" on electrode surface and suppression of a "coat growth" in paragraph 0033.

Applicant's arguments filed 15 November 2004 have been fully considered but they are not persuasive.

Applicants urge that Fui et al cell does not contain the elected EO type containing phosphazene. For these issues, teachings and suggestions, please paragraphs 0033-0035 as clearly pointed out in the above rejection on the record.

Applicants urge that there is no property of low viscosity or safety in Naruyuki et al cell. It is reasonable that the use of the same EO type containing phosphazene or its derivative in a cell would obtain the same or substantially the same property. However, for safety issue, teachings and suggestion please see paragraph 0006 as clearly pointed out in the above rejection on the record.

VI. Claims 1-20 with respect to the elected and applied species are rejected under 35 U.S.C. 103(a) as being unpatentable Naruyuki et al (JP 06-013108) considered in view of Fui et al (JP 11-191431) with machine English language translations as newly submitted. The provisional JP

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11-144757 is withdrawn because it is cumulative after the English language translations of JP 06-013108 and JP 11-191431 are provided).

Naruyuki et al disclose, teach and suggest a non-aqueous secondary (rechargeable) cell (battery) comprising positive electrode, negative electrode, lithium electrolyte salt and phosphazene additive (paragraph 0011). The elected  $\text{LiBF}_4$  electrolyte and other applied electrolyte species are in paragraph 0024.

The instant claims use some less than 2.5 and some more than 2.5 % vol. of phosphazene additive. It has and is given no patentable value since it has no criticality for a patentability of a selection at 2.5 % vol. and each of its both ends on and for the record in the instant application.

Naruyuki et al disclose, teach and suggest the use from 50 to 90% a phosphazene in a mixture of solvent and phosphazene in paragraph 0024.

Naruyuki et al disclose, teach and suggest the elected EO type containing phosphazene with (A) "n" being "3" (paragraph 0016 and 0018) and "R" being "ethoxy" (paragraph 0017) and their derivatives. They are read within the general formula (2) of the instant claims or (B) "m" being "1" (paragraphs 0016) and "R" being "ethoxy" (paragraph 0017) and their derivatives. They are read on the general formula (1) of the instant claims. Please especially see the instant claims 1 and 7 (0033). Accordingly, it is reasonable that the same (the elected EO type containing phosphazene additive) of substantially the same compounds in Naruyuki et al general formula (1) would provide the same property of "phosphazene derivative is a liquid at room temperature" as newly added embodiment. For the same reasons, the property in claims (1 with "flashing point", 2 with "viscosity", 8 and 9 and 10 and 12 and 15 and 16 and 19 and 20

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including “potential window” or ---electrodeconductivity--- (please correct “electoconductivity” in claim 15) or “dielectric constant” would have the same or substantially the same property.

With respect to the elected gamma butyrolactone and ethylene carbonate cyclic ester solvent in claims 4-6 not being cited in Naruyuki et al, Fui et al at paragraph 0025 is cited to show the known use of those solvents together with other applied solvents in a cell for the same or about the same property of dissolving an electrolyte salt to one having ordinary skill in the art at the time the invention was made.

With respect to the use of 2.5 % and less of a phosphazene in claims 13 and 17 not being cited in Naruyuki et al, Fui et al at paragraph 0031 is cite to show the use of a relatively small amount of a phosphazene would be sufficiently provide some advantage properties.

Since above applied references are all related to the use of phosphazene containing compounds in non-aqueous electrolyte cells, it would have been obvious to one having ordinary skill in the art at the time the invention was made to cite the known solvents from Fui et al for the same or substantially the same property of dissolving an electrolyte salt as disclosed, taught and suggested in Fui et al and to cite the use of a relatively small amount of phosphazene the sufficient advantage property of “flameproofing” as disclosed, taught and suggested Fui et al.

Applicant's arguments filed 15 November 2004 have been fully considered but they are not persuasive.

Applicants urge that Naruyuki et al cell does not contain the elected EO type containing phosphazene. For these issues, teachings and suggestions, please paragraphs 0016-0018 as clearly pointed out in the above rejection on the record.

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Applicants urge that there is no property of low viscosity or safety in Naruyuki et al cell. It is reasonable that the use of the same EO type containing phosphazene or its derivative in a cell would obtain the same or substantially the same property. However, for safety issue, teachings and suggestion please see paragraph 0010 as clearly pointed out in the above rejection on the record:

For safety issue, teachings and suggestion please see paragraph 0006 in Fui et al as clearly pointed out in the above rejection on the record.

VII. The rejection over Nakacho et al (5,114,809) and Daifuku et al (5,108,855) is withdrawn in view of the amendment and arguments.

VIII. In re Schreiber, 44 USPQ2d 1429 (states that “A patent applicant is free to recite features of an apparatus either structurally or functionally. See In re Swinehart...169 USPQ 226, 228...Yet, choosing to define an element functionally, i.e., by what it does, carries with a risk. As our predecessor court state in Swinehart...where the Patent Office has reasons that the functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.”) is relied on for a claimed property or its arguments.

IX. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

X. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa V. Le whose telephone number is 571-272-1332.

The examiner can normally be reached from 6:30 AM to 4:30 PM on Monday through Thursday and about the same time of most Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526.

Applicants may file a paper by (1) fax with a central facsimile receiving number 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Hoa V. Le  
Primary Examiner  
Art Unit 1752

HVL  
29 November 2004

HOA VAN LE  
PRIMARY EXAMINER

*Hoa Van Le*